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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/509,649 03/30/00 LEE

R CU-2137TFP

| EXAMINER |
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MM91/0201

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| CHANG, A | |
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| ART UNIT | PAPER NUMBER |

2872

DATE MAILED:

02/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/509,649

Applicant(s)

LEE ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-27, and 31-33 is/are rejected.
- 7) ☒ Claim(s) 28-30 and 34-36 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

Remark

1. This Office Action is in response to applicant's preliminary amendment filed on March 30, 2000 which has been entered as paper number 3.
2. By this amendment, the applicant has canceled claims 1-18 and has newly added claims 19-36. Claims 19-36 remain pending in this application.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
4. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) Title of the Invention.
- (b) Cross-References to Related Applications.
- (c) Statement Regarding Federally Sponsored Research or Development.
- (d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
- (e) Background of the Invention.
 1. Field of the Invention.
 2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) Brief Summary of the Invention.
- (g) Brief Description of the Several Views of the Drawing(s).
- (h) Detailed Description of the Invention.
- (i) Claim or Claims (commencing on a separate sheet).
- (j) Abstract of the Disclosure (commencing on a separate sheet).
- (k) Drawings.
- (l) Sequence Listing (see 37 CFR 1.821-1.825).

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5. The specification is objected to because it lacks proper section headings as described above.

Claim Objections

6. Claims 28-30 and 34-36 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not be dependent from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 28-30 and 34-36 have not been further treated on the merits.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 19-27, and 31-33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification fails to teach adequately as how do a region with “diffuse scattering characteristics” is also capable of appearing to an observer with a “particular shade of gray when viewed from any direction”. The specification also fails to teach adequately that what is consumed to be the “different gray scale region structure types” as recited in claim 19 and what is consumed to be the “micrographic region structure types” recited in claim 26. Claims 20-23, 25-27 and 31-32 inherit the rejection from their respective base claims. Clarifications are required.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. Claims 19-27, and 31-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "are too small to be separately resolvable to the human eye" recited in claims 19 and 24 appears to be descriptive and subjective and it does not give a definite limitation to the claims. The phrase "a limited number of different gray scale region structure types" recited in claim 19 and the phrase "a limited number of different micrographic region structure types" recited in claim 26 appears to be vague, confusing and indefinite since it is not clear what are these "structure types" and it is not clear what exactly does it mean by "a limited number". The phrase "appearing by reason of their different diffuse scattering characteristics" recited in claim 19 appears to be descriptive. Claims 20-23, 25-27 and 31-32 inherit the rejections from their respective base claim.

The phrase "the same image" recited in claims 22 and 23 appears to be vague and indefinite since it lacks a clear and proper antecedent basis from their respective base claim.

The claims as stand now contain numerous errors and confusions. The examiner can only point out a few. It is the applicant's responsibility to correct all of the discrepancies in the claims to make the claims in comply with the requirements of 35 USC 112, first and second paragraphs.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 19-23, 24-27, 31-32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Lee (PN. 5,428,479).

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Lee teaches a diffraction grating having relief grooves structure wherein the diffraction grating comprises a plurality of pixellated diffraction gratings such that each of the pixellated diffraction gratings generates an optically variable image when illuminated. Lee teaches that the pixellated diffraction gratings has a specific gray scale level that is valued between the ranges of 1 to 7 or 1 to 16, when viewed by an observer, (please see the abstract and column 2). The diffraction grating as a whole has a graphic image recorded therein, (please see Figure 2). Lee further teaches that the dimension of the pixellated diffraction grating is on the order of 0.3 millimeter which is smaller than the size that can be resolved by human eye, (please see column 4). This reference discloses all of the limitations of the claims with the exception that it does not teach explicitly that the pixellated diffraction gratings have different diffuse scattering characteristics. However it is known in the art that the diffraction of light by grating into multiple diffraction orders light rays is considered in the art as an act of diffusing scattering of light in different directions. Also it is inherently true that the zero order diffracted light in general has same intensities when viewed from any directions. Since the claims fail to define the meaning of "a limited number of different gray scale region (or micrographic region) structure types" such features therefore can not be addressed here.

With regard to claim 21, Lee teaches that the pixellated grating has a dimension of 0.125 mm square but it does not teach explicitly that the size could also be as the claimed value. However it has been held that when the modification involves a mere change in the size of the component, it is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

With regard to claims 22-23, and 25, Lee does not teach explicitly that the individual pixellated diffraction grating comprises an identical or a different image. However such modification is considered to be an obvious matter of design choice to one skilled in the art.

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Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents issued to Antes (PN. 4,568,141), Holmes et al (PN. 5,483,363) and Lee (PN. 5,825,547) each discloses a form of security device having plurality of diffraction gratings arrangements.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A. Chang
January 26, 2001

A handwritten signature in black ink, appearing to read 'Audrey Chang', with a stylized flourish at the end.

Audrey Chang
Primary Examiner
Technology Center 2800